

## ABSTRACT

[0038] Integrated micro-valve is formed to control fluid flow and pressure. The valve

5 converts supplied energy to mechanical energy through an energy conversion means resident above a flexible wall or membrane. In one embodiment a sealed cavity contains a fluid that expands and contracts as it is heated or cooled, thus causing the flexible wall to move. Movement of this wall or membrane is used to move a valve element and dynamically control the opening or closing of a valve port over a predetermined range.

10 Additional stiffening means are added to the membrane to improve performance.